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For release November 1, 1997

National Diabetes Fact Sheet

National estimates and general information on diabetes in the United States

What is diabetes?

Diabetes mellitus is a group of diseases characterized by high levels of blood glucose resulting from defects in insulin secretion, insulin action, or both. Diabetes can be associated with serious complications and premature death, but persons with diabetes can take measures to reduce the likelihood of such occurrences.

Prevalence of diabetes *

Total: 15.7 million people — 5.9% of the population — have diabetes.

Diagnosed: 10.3 million people

Undiagnosed: 5.4 million people

Incidence of diabetes

New cases diagnosed per year: 798,000

Deaths among persons with diabetes

- Studies have found death rates to be twice as high among middle-aged people with diabetes as among middle-aged people without diabetes.
- Based on death certificate data, diabetes contributed to 187,800 deaths in 1995.
- Diabetes was the seventh leading cause of death listed on U.S. death certificates in 1995, according to CDC's National Center for Health Statistics.
- Diabetes is believed to be underreported on death certificates, both as a condition and as a cause of death.

* For further information on prevalence, see the Appendix.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Chronic Disease Prevention and Health Promotion

CDC
CENTERS FOR DISEASE CONTROL AND PREVENTION

Prevalence of diabetes by age

Age 65 years or older: 6.3 million. *18.4% of all people in this age group have diabetes.*

Age 20 years or older: 15.6 million. *8.2% of all people in this age group have diabetes.*

Under age 20: 123,000. *0.16% of all people in this age group have diabetes.*

Prevalence of diabetes by sex in people 20 years or older *

Men: 7.5 million. *8.2% of all men have diabetes.*

Women: 8.1 million. *8.2% of all women have diabetes.*

Prevalence of diabetes by race/ethnicity in people 20 years or older *

Non-Hispanic whites: 11.3 million. 7.8% of all non-Hispanic whites have diabetes.

Non-Hispanic blacks: 2.3 million. 10.8% of all non-Hispanic blacks have diabetes. On average, non-Hispanic blacks are 1.7 times as likely to have diabetes as non-Hispanic whites of similar age.

Mexican Americans: 1.2 million. 10.6% of all Mexican Americans have diabetes. On average, Mexican Americans are 1.9 times as likely to have diabetes as non-Hispanic whites of similar age.

Other Hispanic/Latino Americans: On average, Hispanic/Latino Americans are almost twice as likely to have diabetes as non-Hispanic whites of similar age. (Sufficient data are not currently available to derive more specific estimates for 1997.)

American Indians and Alaska Natives: Prevalence varies among tribes, bands, pueblos and villages, and ranges from less than 5% to 50% for diagnosed diabetes. There are more than 550 federally recognized tribes, bands, pueblos, and villages in the United States.

Asian Americans and Pacific Islanders: Prevalence data for diabetes among Asian Americans and Pacific Islanders are limited. Some groups within this population are at increased risk for diabetes. For example, data collected from 1988 to 1995 suggest that Native Hawaiians are twice as likely to have diagnosed diabetes as white residents of Hawaii.

* These figures do not include the approximately 123,000 cases of diabetes in children and teenagers in the United States.

The four types of diabetes

Type 1 diabetes was previously called insulin-dependent diabetes mellitus (IDDM) or juvenile-onset diabetes. Type 1 diabetes may account for 5% to 10% of all diagnosed cases of diabetes. Risk factors are less well defined for type 1 diabetes than for type 2 diabetes, but autoimmune, genetic, and environmental factors are involved in the development of this type of diabetes.

Type 2 diabetes was previously called non-insulin-dependent diabetes mellitus (NIDDM) or adult-onset diabetes. Type 2 diabetes may account for about 90% to 95% of all diagnosed cases of diabetes. Risk factors for type 2 diabetes include older age, obesity, family history of diabetes, prior history of gestational diabetes, impaired glucose tolerance, physical inactivity, and race/ethnicity. African Americans, Hispanic/Latino Americans, American Indians, and some Asian Americans and Pacific Islanders are at particularly high risk for type 2 diabetes.

Gestational diabetes develops in 2% to 5% of all pregnancies but disappears when a pregnancy is over. Gestational diabetes occurs more frequently in African Americans, Hispanic/Latino Americans, American Indians, and persons with a family history of diabetes. Obesity is also associated with higher risk. Women who have had gestational diabetes are at increased risk for later developing type 2 diabetes. In some studies, nearly 40% of women with a history of gestational diabetes developed diabetes in the future.

"**Other specific types**" of diabetes result from specific genetic syndromes, surgery, drugs, malnutrition, infections, and other illnesses. Such types of diabetes may account for 1% to 2% of all diagnosed cases of diabetes.

Complications of diabetes

Heart disease

♦ Heart disease is the leading cause of diabetes-related deaths. Adults with diabetes have heart disease death rates about 2 to 4 times as high as that of adults without diabetes.

Stroke

♦ The risk of stroke is 2 to 4 times higher in people with diabetes.

High blood pressure

♦ An estimated 60% to 65% of people with diabetes have high blood pressure.

Blindness

♦ Diabetes is the leading cause of new cases of blindness in adults 20 to 74 years old.
♦ Diabetic retinopathy causes from 12,000 to 24,000 new cases of blindness each year.

Complications of diabetes (continued)

Kidney disease

- Diabetes is the leading cause of end-stage renal disease, accounting for about 40% ofnew cases.
- 27,851 people with diabetes developed end-stage renal disease in 1995.
- In 1995, a total of 98,872 people with diabetes underwent dialysis or kidney transplantation.

Nervous system disease

- About 60% to 70% of people with diabetes have mild to severe forms of nervous system damage (which often includes impaired sensation or pain in the feet or hands, slowed digestion of food in the stomach, carpal tunnel syndrome, and other nerve problems).
- Severe forms of diabetic nerve disease are a major contributing cause of lower extremity amputations.

Amputations

- More than half of lower limb amputations in the United States occur among people with diabetes.
- From 1993 to 1995, about 67,000 amputations were performed each year among people with diabetes.

Dental disease

- Periodontal disease (a type of gum disease that can lead to tooth loss) occurs with greater frequency and severity among people with diabetes. Periodontal disease has been reported to occur among 30% of people aged 19 years or older with type 1 diabetes.

Complications of pregnancy

- The rate of major congenital malformations in babies born to women with preexisting diabetes varies from 0% to 5% among women who receive preconception care to 10% among women who do not receive preconception care.
- Between 3% to 5% of pregnancies among women with diabetes result in death of the newborn; the rate for women who do not have diabetes is 1.5%.

Other complications

- Diabetes can directly cause acute life-threatening events, such as diabetic ketoacidosis* and hyperosmolar nonketotic coma.*
- People with diabetes are more susceptible to many other illnesses. For example, they are more likely to die of pneumonia or influenza than people who do not have diabetes.

* Diabetic ketoacidosis and hyperosmolar nonketotic coma are medical conditions that can result from biochemical imbalance in uncontrolled diabetes.

Cost

Total (direct and indirect): $92 billion (United States, 1992)

Direct medical costs: $45 billion

Indirect costs: $47 billion (disability, work loss, premature mortality)

This estimate is in contrast to higher estimates cited elsewhere that are based on all health care costs incurred by people with diabetes, including costs not resulting from diabetes. New cost estimates are expected to be released within 6 months.

New diagnostic criteria for diabetes*

The new diagnostic criteria for diabetes include the following changes:

- The routine diagnostic test for diabetes is now a fasting plasma glucose test rather than the previously preferred oral glucose tolerance test. (However, in certain clinical circumstances, physicians may still choose to perform the more difficult and costly oral glucose tolerance test.)

- A confirmed** fasting plasma glucose value of greater than or equal to 126 milligrams/deciliter (mg/dL) indicates a diagnosis of diabetes. Previously, a value of greater than or equal to 140 mg/dL had been required for diagnosis.

- In the presence of symptoms of diabetes, a confirmed** nonfasting plasma glucose value of greater than or equal to 200 mg/dL indicates a diagnosis of diabetes.

- When a doctor chooses to perform an oral glucose tolerance test (by administering 75 grams of anhydrous glucose dissolved in water, in accordance with World Health Organization standards, and then measuring the plasma glucose concentration 2 hours later), a confirmed** glucose value of greater than or equal to 200 mg/dL indicates a diagnosis of diabetes.

- In pregnant women, different requirements are used to identify the presence of gestational diabetes.

* For further information about the new diagnostic criteria for diabetes, please refer to the Report of the Expert Committee on the Diagnosis and Classification of Diabetes Mellitus, as referenced in the Appendix.

** Except in certain specified circumstances, abnormal tests must be confirmed by repeat testing on another day.

Treatment of diabetes

Diabetes knowledge, treatment, and prevention strategies advance daily. Treatment is aimed at keeping blood glucose near normal levels at all times. Training in self-management is integral to the treatment of diabetes. Treatment must be individualized and must address medical, psychosocial, and lifestyle issues.

- **Treatment of type 1 diabetes:** Lack of insulin production by the pancreas makes type 1 diabetes particularly difficult to control. Treatment requires a strict regimen that typically includes a carefully calculated diet, planned physical activity, home blood glucose testing several times a day, and multiple daily insulin injections.

- **Treatment of type 2 diabetes:** Treatment typically includes diet control, exercise, home blood glucose testing, and in some cases, oral medication and/or insulin. Approximately 40% of people with type 2 diabetes require insulin injections.

Impaired fasting glucose

Impaired fasting glucose is a new diagnostic category in which persons have fasting plasma glucose values of 110-125 mg/dL. These glucose values are greater than the level considered normal but less than the level that is diagnostic of diabetes. It is estimated that 13.4 million persons, 7.0% of the population, have impaired fasting glucose. Scientists are trying to learn how to predict which of these persons will go on to develop diabetes and how to prevent such progression.

Appendix

How were the estimates in this fact sheet derived?

Periodically, the federal government conducts surveys to determine the health of Americans. Such surveys involve questionnaires and medical tests. The diabetes prevalence and incidence estimates presented in this fact sheet were developed by analyzing the newest available national survey data and then adjusting for changes in the population based on 1997 census estimates. The prevalence of diagnosed diabetes represents the number who said they had diabetes. The prevalence of undiagnosed diabetes represents the number of people who said they did not have diabetes, but when given a fasting plasma glucose test, they did in fact have abnormally elevated blood glucose levels (defined as fasting plasma glucose levels greater than or equal to 126 mg/dL). Other estimates presented in this fact sheet were based on individual surveys, research projects, and registry data. A listing of references and additional data sources are at the end of this fact sheet.

Has the number of persons with diabetes changed since the previous National Diabetes Fact Sheet, which was issued in 1995?

Between the 1995 and 1997 fact sheets, the number of persons with diagnosed diabetes increased from 8 million to 10.3 million, but the number of persons with undiagnosed diabetes decreased. For the 1995 National Diabetes Fact Sheet, the number of persons with undiagnosed diabetes was estimated from research using the oral glucose tolerance test to identify undiagnosed diabetes. In contrast, for the 1997 National Diabetes Fact Sheet, the number of persons with undiagnosed diabetes was estimated from research using the fasting plasma glucose test, according to recently enacted recommendations. These tests are not equivalent, however, and fewer cases of undiagnosed diabetes are identified using the fasting plasma glucose test under current recommendations.

An enhanced national effort to identify previously undiagnosed persons may also have contributed to a decrease in the number of persons with undiagnosed diabetes. Continued efforts to identify persons with undiagnosed diabetes, the implementation of new guidelines for screening, and the use of an easier and less expensive diagnostic test are all likely to lead to even further decreases in the number of persons with undiagnosed diabetes and increases in the number of persons with diagnosed diabetes.

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U.S. Department of Health and Human Services. *Physical activity and health: a report of the Surgeon General.* Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, 1996.

U.S. Renal Data System. *USRDS 1997 Annual Data Report.* Bethesda, MD: National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Disease, 1997.

Additional sources

Calculations were performed by the National Institutes of Health and the Centers for Disease Control and Prevention using data from various surveys including the Third National Health and Nutrition Examination Survey (NHANES III), the National Health Interview Survey (NHIS), and U.S. Census estimates for current population. The national prevalence estimates for diabetes were based on Harris MI, Unpublished Data from NHANES III, 1988-1994.

Information about Native Hawaiians was provided by the Hawaii Diabetes Control Program and is based on Wen M, Unpublished Analysis of Data from the Behavioral Risk Factor Surveillance System (BRFSS) from 1988-1995.

Acknowledgments

The following organizations collaborated in compiling the information for this fact sheet:

American Association of Diabetes Educators
http://www.diabetesnet.com/aade.html

American Diabetes Association
http://www.diabetes.org

Centers for Disease Control and Prevention
http://www.cdc.gov/diabetes

Department of Veterans Affairs
http://www.va.gov/health/diabetes/

Health Resources and Services Administration
http://www.hrsa.dhhs.gov

Indian Health Service
http://www.ihs.gov/IHSMAIN.html

Juvenile Diabetes Foundation International
http://www.jdfcure.com

National Diabetes Education Program
Internet page under construction

National Institute of Diabetes and Digestive and Kidney Diseases of the National Institutes of Health
http://www.niddk.nih.gov

U.S. Department of Health and Human Services Office of Minority Health
http://www.omrhc.gov

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